SOURCE KODE MENGGUNAKAN BAHASA JAVA APACHE NETBEANS

1. MATRIKS PERTAMBAHAN DAN PENGURANGAN

```
import java.util.Scanner;
public class NewClass {
public static void main(String[]args){
      Scanner masuk = new Scanner(System.in);
      int pilih;
      int a=0, b=0, c=0;
      int i, j, k;
      int matriksA [][] = new int[3][3];
      int matriksB [][] = new int[3][3];
      int hasil[][] = new int[3][3];
   do {
    System.out.println("============ Menu Pilihan ============");
    System.out.println("1.Penjumlahan dan Pengurangan Matriks");
    System.out.println("2.Matriks Transpose");
    System.out.println("3.Matriks Balikan");
    System.out.println("4.Determinan");
    System.out.println("5.Sistem Persamaan Linear");
    System.out.println("6.Keluar");

    System.out.println("-----------------");
    System.out.print("Pilihan Anda : ");
    pilih = masuk.nextInt();
    switch(pilih){
        case 1:
            System.out.println("1. Penjumlahan Matriks");
            System.out.println("2. Pengurangan Matriks");
            System.out.print("Pilih : ");
            pilih = masuk.nextInt();
```

```
case 2:
System.out.println("Pengu.rangan Matriksn);
System. out.println (nMatriks An);
System.out.println("Masukan elem.en matriks ");
for (i=O; i<2; i++)t
for (j=O; j<2; j++)t
System.out.print(nNilai a(n+ (i + 1) + ", " + (j + l) + ") ");
matriksA[i)[j) = masuk.nextint();
}

//inpuc ele en mac iks B
System.out.println("Matr1.ks 8");
System.out.println ("Masukan elemen ma1;riks n);
for (i=O; i<2; i++)t
for (j=O; j<2; j++)I
System.out.print(¹¹Nila1. a("+ (i + 1) + ", " + (j + l) + ") ");
matriksB(i)[j) = masuk.nextint();
}


//mela Jkan pengurangan
System. out. println ("==================");
System.out.println(•¹aas1.l Peng-,..;.rangan Matrilcs Adan 8 ");
for (i=O; i <2; i++)I
for (j = O; j <2; j++)t
hasil(i)(j) = matriksA(i)(j) - matriksB(i)(j);
System.out.print(+(hasil(i)(j))+" " );
}
System.out.println (n ");

break;
```

```
switch(pilih)I
    case l:
    //input elemen reatriks A
    System.out.println(nPenjum.lahan Mat=iks");
    System. out.println ("Matriks A");
    System. out.println ("Masukan ele:men matriks ");
    for (i=O; i<2; i++)I
    for (j=O; j<2; j++)I
    System.out.print("Nila1.. a("+ (i + 1) + "," + (j + l) + ")
    wetriksA(i)[j) = masuk.nextint();
    }
    }
    //inpu eleffien reatriks S
    System. out.println ("Matriks 8");
    System.out.println("Masukan elemen matriks ");
    for (i=O; i<2; i++)I
    for (j=O; j<2; j++)I
    System.out.print("Nila1.. a("+ (i + 1) + "," + (j + l) + ")
    matriksB(i)(j) = masuk.nextint();
    }

  //melalrukan penjumlahan
    System.out.println(n ");
    System. out.println ("Hasil Penjumlahan Mat=ik:s A dan 8 ");
    for (i=O; i <2; i++)I
    for (j = O; j <2; j++){
    hasil(i)(j) = matriksA(i)(j) + matriksB(i)(j);
    System.out.print(+(hasil[i)(j))+" " );
    }
    System. out.println (n n);
```

2. MATRIKS TRANSPOSE 2X2 3X3

```
case 2:
    Scanner scan = new Scanner(System.in);
    int pilihan;
    int matriks[][] = new int[10][10];
    int transpose[][]= new int[10][10];
    System.out.println("1. Matriks ordo 2x2 : ");
    System.out.println("2. Matriks ordo 3x3 : ");
    System.out.print("Pilih ordo matriks : ");
    pilih = scan.nextInt();
    switch(pilih){
        case 1:
            System.out.println("Matriks ordo 2x2");
            System.out.println("Masukan elemen matriks : ");
            for(i=0; i<2; i++){
            for(j=0; j<2; j++){
            System.out.print("Nilai a("+ (i + 1) + "," + (j + 1) + ") = ");
            matriks[i][j] = scan.nextInt();
            }
            }
            for(i=0; i<2; i++){
            for(j=0; j<2; j++){
            transpose[j][i] = matriks[i][j];
            }
            }
            System.out.println("Hasil Transpose matriks : ");
            for(i=0; i<2; i++){
            System.out.print("[ ");
            for(j=0; j<2; j++){
            System.out.print(transpose[i][j] + " ");
            }
            System.out.println(" ]");
            }
```

```
case 2:
    System.out.println("================");
    System.out.println("Matriks ordo 3x3");
    System.out.println("Masukan elemen matriks : ");
    for(i=0; i<3; i++){
    for(j=0; j<3; j++){
    System.out.print("Nilai a("+ (i + 1) + "," + (j + 1) + ") = ");
    matriks[i][j] = scan.nextInt();
    }
    }
    for(i=0; i<3; i++){
    for(j=0; j<3; j++){
    transpose[j][i] = matriks[i][j];
    }
    }
    System.out.println("Hasil Transpose matriks : ");
    for(i=0; i<3; i++){
    System.out.print("[ ");
    for(j=0; j<3; j++){
    System.out.print(transpose[i][j] + " ");
    }
    System.out.println(" ]");
    }
    break;
```

3. MATRIKS BALIKAN 2X2

```
case 3:
    Scanner input = new Scanner(System.in);
    System.out.println("Matriks Balikan ordo 2x2");
    int[][] matriksl = new int [2][2];
    System.out.println("Masukan elemen matriks : ");
    for (i=0; i<2; i++){
    for (j=0; j<2; j++){
    System.out.print("Nilai a("+ (i + 1) + "," + (j + 1) + ") = ");
    matriksl[i][j] = input.nextInt();
    }
    System.out.println();
    }
    System.out.println("Matriks Asli  : ");
    for (i=0; i<2; i++){
    System.out.print("[ ");
    for (j=0; j<2; j++){
    System.out.print(matriksl[i][j]+" ");
    }
    System.out.println(" ]");
    }
//menghitung determinan matriks
    double determinan = (matriksl[0][0]*matriksl[1][1])
                        -(matriksl[0][1]*matriksl[1][0]);
    System.out.println("Determinan : " + determinan);
    int temp=matriksl[0][0];
    matriksl[0][0] = matriksl[1][1];
    matriksl[1][1] = temp;
    matriksl[0][1]*= -1;
    matriksl[1][0]*= -1;
```

```
//output adjoin
    System.out.println("\n Matriks Adjoin : ");
    for (i=0; i<2; i++){
    System.out.print("[ ");
    for (j=0; j<2; j++){
    System.out.print(matriksl[i][j]+" ");
    }
    System.out.println(" ]");
    }
//menghitung invers matriks
    System.out.print("Matriks balikanya : \n");
    for (i=0; i<2; i++){
    System.out.print("[ ");
    for (j=0; j<2; j++){
    System.out.print(matriksl[i][j]+ " " +determinan+ " ");
    }
    System.out.println(" ]");
    }
    while (true){
    System.out.print("Kembali ke menu awal (y/n) : ");
    char kembali = masuk.next().charAt(0);
    if (kembali == 'y' || kembali == 'Y'){
    break; //kembali ke menu awal
    } else if (kembali == 'n' || kembali == 'N'){
    pilih = 6;
    break; //keluar dari program
    } else {
    System.out.println("Anda hanya bisa memasukan 'y' atau 'n' ");
    }
    }
break;
```

4. MATRIKS DETERMINAN 2X2 3X3

```
case 4:
    int in;
    Scanner inp = new Scanner(System.in);
    System.out.println("Mencari Determinan Matriks");
    System.out.println("1. Matriks 2x2");
    System.out.println("2. Matriks 3x3");
    System.out.print("Pilih ordo matriks : ");
    pilih = inp.nextInt();
    switch(pilih){
        case 1:
            int Tem;
            Scanner inpt = new Scanner(System.in);
            System.out.println("Matriks ordo 2x2");
            int[][] matriksX = new int [2][2];
            System.out.println("Masukan elemen matriks : ");
            for (i=0; i<2; i++){
            for (j=0; j<2; j++){
            System.out.print("Nilai a("+ (i + 1) + "," + (j + 1) + ") = ");
            matriksX[i][j] = inpt.nextInt();
            }
            System.out.println();
            }
            System.out.println("Matriks Asli  : ");
            for (i=0; i<2; i++){
            System.out.print("[ ");
            for (j=0; j<2; j++){
            System.out.print(matriksX[i][j]+" ");
            }
            System.out.println(" ]");
            }
```

```
//menghitung determinan matriks
            double det = (matriksX[0][0]*matriksX[1][1])-
                         (matriksX[0][1]*matriksX[1][0]);
            System.out.println("Determinan : " + det);
            int Temp = matriksX[0][0];
            matriksX[0][0] = matriksX[1][1];
            matriksX[1][1] = Temp;
            matriksX[0][1]*= -1;
            matriksX[1][0]*= -1;
            System.out.println("================");
```

5. MATRIKS SISTEM PERSAMAAN LINIER 2X3

```
case 5:
    Scanner inputt = new Scanner(System.in);
    // Memasukkan nilai matriks koefisien A dan vektor hasil b
    System.out.println("Masukkan nilai matriks koefisien A dan vektor hasil b (matriks ordo 2x3):");
    double[][] A = new double[2][3];
    double[] B = new double[2];

    // Memasukkan nilai matriks A
    for (i = 0; i < 2; i++) {
    for (j = 0; j < 3; j++) {
    System.out.print("a" + (i + 1) + (j + 1) + ": ");
    A[i][j] = inputt.nextDouble();
    }
    }

    // Memasukkan nilai vektor b
    for (i = 0; i < 2; i++) {
    System.out.print("b" + (i + 1) + ": ");
    B[i] = inputt.nextDouble();
    }

    // Menyelesaikan SPL Ax = b
    double det = A[0][0] * A[1][1] - A[0][1] * A[1][0];

    if (det == 0) {
    System.out.println("Sistem Persamaan Tidak Memiliki Solusi");
    } else {
    double x = (B[0] * A[1][1] - A[0][1] * B[1]) / det;
    double y = (A[0][0] * B[1] - B[0] * A[1][0]) / det;

    // Menampilkan hasil
    System.out.println("Solusi SPL:");
    System.out.println("x = " + x);
    System.out.println("y = " + y);
    }
    while (true){
    System.out.print("Kembali ke menu awal (y/n) : ");
    char kembali = masuk.next().charAt(0);
    if (kembali == 'y' || kembali == 'Y'){
    break; //kembali ke menu awal
    } else if (kembali == 'n' || kembali == 'N'){
    pilih = 6;
    break; //keluar dari program
    } else {
    System.out.println("Anda hanya bisa memasukan 'y' atau 'n' ");
    }
    }
break;
case 6:
    System.out.println("TERIMA KASIH :) ");
    return;
default:
    System.out.println("Anda hanya bisa memilih 1-6");
break;
}
```

```
import static jdk.nashorn.tools.ShellFunctions.input;

import java.util.Scanner;
public class Menupilihan {
    public static void main(String[]args){
      Scanner masuk = new Scanner(System.in);
      boolean exit = false;
      int pilih;
      int a=0, b=0, c=0;
      int i, j, k;
      int matriksA [][] = new int[3][3];
      int matriksB [][] = new int[3][3];
      int hasil[][] = new int[3][3];

    System.out.println("============ Menu Pilihan ============");
    System.out.println("1.Penjumlahan dan Pengurangan Matriks");
    System.out.println("2.Matriks Transpose");
    System.out.println("3.Matriks Balikan");
    System.out.println("4.Determinan");
    System.out.println("5.Sistem Persamaan Linear");
    System.out.println("6.Keluar");

    System.out.println("-----------------");
    System.out.print("Pilihan Anda : ");
    pilih = masuk.nextInt();
    switch(pilih){
       case 1:
          System.out.println("1. Penjumlahan Matriks");
          System.out.println("2. Pengurangan Matriks");
          System.out.print("Pilih : ");
          pilih = masuk.nextInt();
          switch(pilih){
             case 1:
             //input elemen matriks A
             System.out.println("Penjumlahan Matriks");
             System.out.println("Matriks A");
             System.out.println("Masukan elemen matriks : ");
             for (i=0; i<2; i++){
             for (j=0; j<2; j++){
             System.out.print("Elemen ["+ (i + 1) + "," + (j + 1) + "] = ");
             matriksA[i][j] = masuk.nextInt();
             }
             }
             //input elemen matriks B
             System.out.println("Matriks B");
             System.out.println("Masukan elemen matriks : ");
             for (i=0; i<2; i++){
             for (j=0; j<2; j++){
             System.out.print("Elemen ["+ (i + 1) + "," + (j + 1) + "] = ");
             matriksB[i][j] = masuk.nextInt();
             }
             }
            //melakukan penjumlahan
             System.out.println("================================");
             System.out.println("Hasil Penjumlahan Matriks A dan B ");
             for (i=0; i <2; i++){
             for (j = 0; j <2; j++){
             hasil[i][j] = matriksA[i][j] + matriksB[i][j];
```

```
        System.out.print(+(hasil[i][j])+" " );
        }
        System.out.println("  ");
        }

       break;
        case 2:
           //input elemen matriks A
        System.out.println("Pengurangan Matriks");
        System.out.println("Matriks A");
        System.out.println("Masukan elemen matriks : ");
        for (i=0; i<2; i++){
        for (j=0; j<2; j++){
        System.out.print("Elemen ["+ (i + 1) + "," + (j + 1) + "] = ");
        matriksA[i][j] = masuk.nextInt();
        }
        }
        //input elemen matriks B
        System.out.println("Matriks B");
        System.out.println("Masukan elemen matriks : ");
        for (i=0; i<2; i++){
        for (j=0; j<2; j++){
        System.out.print("Elemen ["+ (i + 1) + "," + (j + 1) + "] = ");
        matriksB[i][j] = masuk.nextInt();
        }
        }

      //melakukan pengurangan
        System.out.println("================================");
        System.out.println("Hasil Pengurangan Matriks A dan B ");
        for (i=0; i <2; i++){
        for (j = 0; j <2; j++){
        hasil[i][j] = matriksA[i][j] - matriksB[i][j];
        System.out.print(+(hasil[i][j])+" " );
        }
        System.out.println("  ");
        }

        return;
        }

case 2:
   Scanner scan = new Scanner(System.in);
   int pilihan;
   int matriks[][] = new int[10][10];
   int transpose[][]= new int[10][10];


   System.out.println("1. Matriks ordo 2x2 : ");
   System.out.println("2. Matriks ordo 3x3 : ");
   System.out.print("Pilih ordo matriks : ");
   pilih = scan.nextInt();
   switch(pilih){
      case 1:
         System.out.println("Matriks ordo 2x2");
         System.out.println("Masukan elemen matriks : ");
         for(i=0; i<2; i++){
         for(j=0; j<2; j++){
```

```
            matriks[i][j] = scan.nextInt();
            }
            }
            for(i=0; i<2; i++){
            for(j=0; j<2; j++){
            transpose[j][i] = matriks[i][j];
            }
            }
            System.out.println("Hasil Transpose matriks : ");
            for(i=0; i<2; i++){
            System.out.print("[ ");
            for(j=0; j<2; j++){
            System.out.print(transpose[i][j] + " ");
            }
            System.out.println(" ]");
            }
            return;

        case 2:
            System.out.println("Matriks ordo 3x3");
            System.out.println("Masukan elemen matriks : ");
            for(i=0; i<3; i++){
            for(j=0; j<3; j++){
            matriks[i][j] = scan.nextInt();
            }
            }
            for(i=0; i<3; i++){
            for(j=0; j<3; j++){
            transpose[j][i] = matriks[i][j];
            }
            }
            System.out.println("Hasil Transpose matriks : ");
            for(i=0; i<3; i++){
            System.out.print("[ ");
            for(j=0; j<3; j++){
            System.out.print(transpose[i][j] + " ");
            }
            System.out.println(" ]");
            }
            return;
            }
case 3:
    Scanner input = new Scanner(System.in);
    System.out.println("Matriks Balikan ordo 2x2");
    int[][] matriks1 = new int [2][2];
    System.out.println("Masukan elemen matriks : ");
    for (i=0; i<2; i++){
    for (j=0; j<2; j++){
    System.out.print("Elemen ["+ (i + 1) + "," + (j + 1) + "] = ");
    matriks1[i][j] = input.nextInt();
    }
    System.out.println();
    }
    System.out.println("Matriks Asli  : ");
    for (i=0; i<2; i++){
    System.out.print("[ ");
    for (j=0; j<2; j++){
    System.out.print(matriks1[i][j]+" ");
```

```
    }
    System.out.println(" ]");
    }
//menghitung determinan matriks
    double determinan = (matriks1[0][0]*matriks1[1][1])
                    -(matriks1[0][1]*matriks1[1][0]);
    System.out.println("Determinan : " + determinan);
    int temp=matriks1[0][0];
    matriks1[0][0] = matriks1[1][1];
    matriks1[1][1] = temp;
    matriks1[0][1]*= -1;
    matriks1[1][0]*= -1;


//output adjoin
    System.out.println("\n Matriks Adjoin : ");
    for (i=0; i<2; i++){
    System.out.print("[ ");
    for (j=0; j<2; j++){
    System.out.print(matriks1[i][j]+" ");
    }
    System.out.println(" ]");
    }

//menghitung invers matriks
    System.out.print("Matriks balikanya : \n");
    for (i=0; i<2; i++){
    System.out.print("[ ");
    for (j=0; j<2; j++){
    System.out.print(matriks1[i][j]+ " " +determinan+ " ");
    }
    System.out.println(" ]");
    }
    return;

case 4:
    int in;
    Scanner inp = new Scanner(System.in);
    System.out.println("Mencari Determinan Matriks");
    System.out.println("1. Matriks 2x2");
    System.out.println("2. Matriks 3x3");
    System.out.print("Pilih ordo matriks : ");
    pilih = inp.nextInt();
    switch(pilih){
       case 1:
          int Tem;
          Scanner inpt = new Scanner(System.in);
          System.out.println("Matriks ordo 2x2");
          int[][] matriksX = new int [2][2];
          System.out.println("Masukan elemen matriks : ");
          for (i=0; i<2; i++){
          for (j=0; j<2; j++){
          System.out.print("Elemen ["+ (i + 1) + "," + (j + 1) + "] = ");
          matriksX[i][j] = inpt.nextInt();
          }
          System.out.println();
          }
          System.out.println("Matriks Asli  : ");
```

```
            for (i=0; i<2; i++){
            System.out.print("[ ");
            for (j=0; j<2; j++){
            System.out.print(matriksX[i][j]+" ");
            }
            System.out.println(" ]");
            }
//menghitung determinan matriks
            double det = (matriksX[0][0]*matriksX[1][1])-
                        (matriksX[0][1]*matriksX[1][0]);
            System.out.println("Determinan : " + det);
            int Temp = matriksX[0][0];
            matriksX[0][0] = matriksX[1][1];
            matriksX[1][1] = Temp;
            matriksX[0][1]*= -1;
            matriksX[1][0]*= -1;


          case 2:
            System.out.println("Matriks ordo 3x3");
            int[][] matrikss = new int [3][3];
            System.out.println("Masukan elemen matriks : ");
            for (i=0; i<3; i++){
            for (j=0; j<3; j++){
            System.out.print("Elemen ["+ (i + 1) + "," + (j + 1) +"] = ");
            matrikss[i][j] = inp.nextInt();
            }
            System.out.println();
            }
            System.out.println("Matriks Asli  : ");
            for (i=0; i<3; i++){
            System.out.print("[ ");
            for (j=0; j<3; j++){

            System.out.print(matrikss[i][j]+" ");
            }
            System.out.println(" ]");
            }
//menghitung determinan matriks
            float detr;
            detr = (matrikss[0][0]*matrikss[1][1]*matrikss[2][2])
                 +(matrikss[0][1]*matrikss[1][2]*matrikss[2][0])
                 +(matrikss[0][2]*matrikss[1][0]*matrikss[2][1])
                 +(matrikss[2][0]*matrikss[1][1]*matrikss[0][2])
                 -(matrikss[2][1]*matrikss[1][2]*matrikss[0][0])
                 -(matrikss[2][2]*matrikss[1][0]*matrikss[0][1]);
            System.out.println("Determinan : " + detr);
            }
            return ;

//Sistem Persamaan Linier
case 5:
   Scanner inputt = new Scanner(System.in);
   // Memasukkan nilai matriks koefisien A dan vektor hasil b
   System.out.println("Masukkan nilai matriks koefisien A dan vektor hasil b (matriks ordo 2x3):");
   double[][] A = new double[2][3];
   double[] B = new double[2];
```

```
            // Memasukkan nilai matriks A
            for (i = 0; i < 2; i++) {
            for (j = 0; j < 3; j++) {
            System.out.print("a" + (i + 1) + (j + 1) + ": ");
            A[i][j] = inputt.nextDouble();
            }
            }

            // Memasukkan nilai vektor b
            for (i = 0; i < 2; i++) {
            System.out.print("b" + (i + 1) + ": ");
            B[i] = inputt.nextDouble();
            }

            // Menyelesaikan SPL Ax = b
            double det = A[0][0] * A[1][1] - A[0][1] * A[1][0];

            if (det == 0) {
            System.out.println("Sistem Persamaan Tidak Memiliki Solusi");
            } else {
            double x = (B[0] * A[1][1] - A[0][1] * B[1]) / det;
            double y = (A[0][0] * B[1] - B[0] * A[1][0]) / det;

            // Menampilkan hasil
            System.out.println("Solusi SPL:");
            System.out.println("x = " + x);
            System.out.println("y = " + y);

            }

            break;

        case 6:
            System.out.println("TERIMA KASIH :) ");
            return;
        default:
            System.out.println("Anda hanya bisa memilih 1-6");
            break;
    }

}

}
```